

cases it takes the form of a cornute projection, which may be two or three inches in length.

However small the "navel" orifice may be it is point of weakness in the rind of the orange, and renders it peculiarly liable to "splitting." This is a term applied to the opening of fissures in the pericarp, whereby germs of decay are admitted to the interior. Orchardists are not agreed as to the causes which produce the tension within the orange, but the resultant ruptures often occasion a large percentage of loss in the crop.

SAN BERNARDINO, CALIFORNIA

THE FATE OF A VIOLET, OR THE BENEFIT OF CLEISTOGAMY

BY E. J. HILL

The efficacy of cleistogamy in the preservation of a species under adverse conditions of environment was well shown by a case which came under my observation a few years ago. The area now comprised in Hamilton Park, one of the smaller parks of Chicago, is but a block from where I have lived since 1885, and was familiar ground for botanical study and collecting for ten years previous. It was in part undisturbed prairie; in part wooded by a scattered growth of oaks and shrubs in the dryer portion. There was a low ridge of sand forming the southern part of the area, with an herbaceous flora common to low sand dunes. The remainder was wet or wettish prairie in which the sand was mixed with humus a foot or more in depth, making a black soil resting on the pure sand of the old lake bottom, akin to that of the low ridge. The property being for a long time in litigation was nearly all left vacant until used for the park, while the grounds contiguous had been largely taken for dwellings. The making of streets and construction of sewers served to drain the wet sections, and as commonly happened in such cases some of the plants of the dry ground moved into the drained portion to associate with, or supplant, the less resistant original occupants; and plots where *Cypripedium candidum*, *Viola blanda*, *V. lanceolata*, and the like once flourished were taken by *Phlox bifida*, *Viola pedata*, and their associates. The last mentioned did this

on a large scale, and multiplying abundantly in the richer soil of the prairie, which held enough of sand for its nature, soon stocked the ground. Blooming profusely the showy flowers were doomed to be picked by the people living around, especially by the children. As more houses were built and population increased the case of the violets became more and more adverse. They were literally picked by the hundred by the eager visitors. This resulted in the extermination of the plant in a few years, and long before the ground was taken for the purpose of the park, about five years ago, not a bird-foot-violet could be found. Johnny jump-up, as the children called the plant, had succumbed to the predatory habits of the flower gatherers. Had it not been an exception to the usual custom of the genus in producing cleistogamous flowers, I should have expected a different result. This seems evident from the ability of the various species of blue violets, which abound in the woods and fields contiguous to the city, to hold their place notwithstanding they are picked annually in great numbers. The inconspicuous summer and autumn flowers, unknown to the vast majority of flower gatherers, and without attraction to such, provide the seeds for multiplying and perpetuating their kind. Hence I do not perceive any sensible diminution in their numbers when not subject to other causes than the gathering for bouquets.

CHICAGO, ILLINOIS

REVIEWS

Kükenthal's *Cyperaceae-Caricoideae**

The volume of the *Pflanzenreich* issued on May 18 last, contains the first attempt to present descriptions and keys of all species of *Carex* and related genera occurring throughout the world. The work — a bulky volume of over 800 pages — is the result of many years' labor by the learned author Georg Kükenthal. It contains a very great amount of material of interest and value to all students of the genera dealt with, and will prove of great aid to American students.

* *Das Pflanzenreich* (38 Heft. IV. 20) *Cyperaceae-Caricoideae* by Georg Kükenthal. Pp. 384. f. 128. Wilhelm Engelmann, Leipzig, 1909. Mk. 41.20. (Issued May 18.)